

REMARKS

Claims 1-4, 10-13, 15-17, and 19 constitute the pending claims in the present application. Applicants respectfully request reconsideration in view of the following remarks. Issues raised by the Examiner will be addressed below in the order they appear in the prior Office Action.

Restriction requirement. Applicants affirm the provisional election of Group I, claims 1-20 with traverse.

Rejection under 35 U.S.C. 112, second paragraph and 35 U.S.C. 101. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, and 35 U.S.C. 101 for being indefinite and for being an improper process claim. Claim 20 has been cancelled without prejudice to Applicant's right to pursue the subject matter of this claim in another application, thereby rendering the rejection moot. Applicants respectfully request reconsideration and withdrawal of this rejection.

Rejection under 35 U.S.C. 102(e). Claims 1, 2, and 5-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Kasturi (US 6827795). Applicants traverse this rejection to the extent it is maintained over the claims as amended.

Claim 1 recites a liquid laundry detergent composition comprising (a) at least one detergent ingredient selected from the group consisting of anionic surfactants, zwitterionic surfactants, amphoteric surfactants, and mixtures thereof; (b) a coacervate phase forming cationic polymer selected from cationic guar gums in an amount of from 0.05 to 0.2% by weight of the composition; (c) one or more fabric care ingredients selected from the group consisting of (c1) one or more cationic silicone polymers comprising one or more polysiloxane units and one or more nitrogen moieties, wherein the cationic silicone polymer has a formula selected from (1), (2), and (3); (c3) one or more nitrogen-free silicone polymers, wherein the nitrogen-free silicone polymers, when present, have a viscosity of 100,000 to 480,000 centistokes at 20 °C; and (c4) mixtures thereof; and (d) a liquid carrier.

The Office Action states that Kasturi teaches mild detergent compositions comprising a variety of cationic polymers, anionic surfactants, amphoteric/zwitterionic surfactants, polydimethylsiloxane, and the balance water as shown in examples 23-29. Applicants respectfully direct the Examiner's attention in particular to example 23, which is the only

example that uses a cationic guar gum as the cationic polymer. More specifically, Kasturi uses **0.5 weight%** of the cationic guar gum. In contrast, Applicant's pending claims recite that the amount of cationic guar gum is from **0.05 to 0.2 weight%**. Applicants assert that Kasturi does not teach all of the elements of the claims and thus does not anticipate the claims. Therefore Applicants respectfully request reconsideration and withdrawal of this rejection.

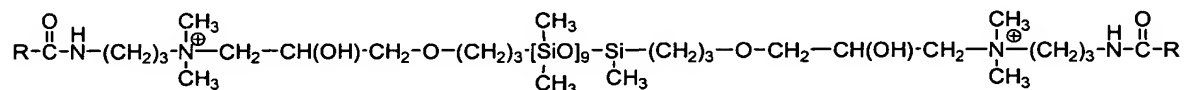
Rejection under 35 U.S.C. 102(b). Claims 1, 2, and 5-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Patel (US 5747435).

The Office Action states that Patel teaches mild detergent compositions comprising polyquaternium-10, anionic surfactant, zwitterionic surfactant, polyoxyethylene dimethyl siloxane, and the balance water. Applicants respectfully direct the Examiner's attention to column 6, lines 46-58 which states that "Suitable silicones include trimethylsilylamodimethicone purchased under the trade name Dow Corning Q2-8220 - an amine functional polydimethylsiloxane; copolymers of polydimethylsiloxane and a poly C₂ -C₃ alkylene ether purchased under the tradenames Dow Corning 190, Dow Corning 2-5324 and Dow Corning Q2-5220; and polydimethyl siloxanes having at least one quaternary ammonium moiety, preferably two quaternary ammonium moieties. The latter silicone is available commercially under the tradename ABIL-QUAT 3270 for example. If silicones other than those above are employed, the resultant compositions usually are not clear because part of the polydimethylsiloxane is present in water insoluble form." (emphasis added).

Applicants attach as Exhibits A-E the material data safety sheets for each of Dow Corning Q2-8220 (an amino silicone polymer), Dow Corning 190 (a nitrogen free silicone polymer), Dow Corning 5324 (a nitrogen free silicone polymer), Dow Corning Q2-5220 (a nitrogen free silicone polymer), and ABIL-QUAT 3270 (a cationic silicone polymer). More specifically, Applicants refer the Examiner to the viscosity data provided for each of Dow Corning Q2-8220 (page 4, section 9, **130 centistokes**), Dow Corning 190 (page 4, section 9, **1750 centistokes**), Dow Corning 5324 (page 4, section 9, **350 centistokes**), and Dow Corning Q2-5220 (page 4, section 9, **925 centistokes**). Applicants also attach as Exhibit F, an email from a representative of Dow Corning which states that the "Dow Corning 2-5324" referred to in Patel is identical to "Dow Corning 5324" of Exhibit C.

Applicants respectfully note that pending claim 1 as amended excludes amino silicone polymers and further requires that the viscosity of nitrogen-free silicone polymers is from **100,000 to 480,000 centistokes** at 20 °C. Applicants assert that the viscosity for each of the silicone materials described in Patel falls well outside the range required in claim 1 as amended.

Further, with regard to ABIL-QUAT 3270, the structure of ABIL-QUAT 3270 as shown in the material data safety sheet (Exhibit E) is the following:



Applicants submit that the ABIL-QUAT 3270 falls outside the scope of the claims as amended. Applicants assert that Patel teaches away from the use of other silicone materials since the invention “primarily resides in the discovery that the foaming and conditioning compositions which are miled can be prepared in the form of [sic] clear liquids if balanced molecular porportions of selected... agents are employed.” (column 2, lines 53-59, emphasis added). Applicants therefore assert that Patel does not teach or suggest all of the elements of the claims and therefore does not anticipate the claims. Applicants respectfully request reconsideration and withdrawal of this rejection.

Rejection under 35 U.S.C. 102(b). Claims 1-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Decoster (US 6028041). Applicants traverse this rejection to the extent it is maintained over the claims as amended.

The Office Action states that Decoster teaches a composition for cleansing and conditioning the hair comprising Jaguar C13S, anionic surfactant, amphoteric surfactant, amodimethicone, polydimethylsiloxane, citric acid, and the balance water. Applicants respectfully direct the Examiner’s attention to column 11, lines 50-55 of Patel which states that “[a]ccording to an essential characteristic of the detergent hair-care compositions according to the invention, these compositions contain, in addition, a mixture of *at least one aminated silicone* and at least one insoluble specific silicone (different from the aforementioned silicone) of viscosity less than or equal to 100 Pa.s (100,000 cSt).” (emphasis added). Applicants note that the claims as amended exclude **aminated silicones** which are essential to the composition of Decoster. Therefore, Decoster does not teach or suggest all of the elements of the claims and

thus does not anticipate the claimed invention. Applicants respectfully request reconsideration and withdrawal of this rejection.

Rejection under 35 U.S.C. 102(e). Claims 1-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Duden (US 6808701). Applicants traverse this rejection to the extent it is maintained over the claims as amended.

The Office Action states that Duden teaches conditioning compositions comprising polyquaternium-10, anionic surfactant, zwitterionic surfactant, trimethylsilylamodimethicone, dimethicone copolyol, citric acid, and the balance water. Applicants respectfully direct the Examiner's attention to column 1, lines 51-59 of Duden which states that "[a]lternatively, guar gum derivatives have also been employed in conditioning shampoos. U.S. Pat. No. 5,085,857 discloses compositions containing surfactants, guar gum derivatives, and insoluble, non-volatile silicones. *Like the cationic cellulosic polymers, guar gum derivatives are also associated with leaving an "unclean" residue.* Moreover, these compositions also require a shear thinning polymer or an insoluble solid for enhancing the composition's stability." (emphasis added). Applicants assert that not only does Duden not teach or suggest compositions comprising cationic guar gum, which is a required component of the pending claims, but in fact, Duden *teaches away* from the use of cationic guar gum. Applicants respectfully request reconsideration and withdrawal of this rejection.

Rejection under 35 U.S.C. 102(e). Claims 1, 2, and 5-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Kilgour (US 6545085). Applicants traverse this rejection to the extent it is maintained over the claims as amended.

The Office Action states that Kilgour teaches personal care compositions comprising polyquaternium-10, anionic surfactant, zwitterionic surfactant, cyclopentasiloxane, dimethicone copolyol and the balance water. Applicants respectfully direct the Examiner's attention to column 2, lines 19-67, wherein Kilgour describes the composition as containing cross-linked polyether substituted silicone elastomers. Applicants further direct the Examiner to column 3, lines 46-67, wherein Kilgour described various methods for crosslinking the polymeric compounds that all include subjecting the polymer composition to hydrosilation conditions using platinum catalysts. Applicants note that the liquid laundry detergent compositions of the

pending claims are not cross-linked; moreover, the specification does not describe the polyester blend compositions as being subjected to hydrosilation conditions, and thus Applicants assert that Kilgour does not teach or suggest all of the elements of the claims, therefore Kilgour does not anticipate the claims. Applicants respectfully request reconsideration and withdrawal of this rejection.

Rejection under 35 U.S.C. 102(b). Claims 1, 2, and 5-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Murray (US 6277361). Applicants traverse this rejection to the extent it is maintained over the claims as amended.

The Office Action states that Murray teaches shampoo compositions comprising Jaguar C13S, non-amino functionalized silicone, amino functionalized silicone, and the balance water. Applicants respectfully direct the Examiner's attention to column 1, lines 24-29 of Murray which states that "improved conditioning performance from a surfactant-based shampoo composition can be achieved by the inclusion of... amino functionalized silicone and high viscosity non-amino functionalised silicone." Applicants also respectfully direct the Examiner column 4, lines 38-40, wherein Murray states that the viscosity of the non-amino functionalised silicone must be **greater than 500,000 centistokes**. The pending claims **do not** include an amino functionalized silicone and require that the viscosity of the non-amino functionalised silicone is from **100,000 to 480,000 centistokes**. Applicants therefore assert that Murray does not teach or suggest all of the elements of the claim and thus does not anticipate the claimed invention. Therefore Applicants respectfully request reconsideration and withdrawal of this rejection.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 18-1945, under Order No. 004041-0016 from which the undersigned is authorized to draw.

Dated: August 1, 2005

Respectfully submitted,

By 

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DOW CORNING

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DOW CORNING(R) Q2-8220 CONDITIONING ADDITIVE

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

24 Hour Emergency Telephone: (989) 496-5900
Customer Service: (989) 496-6000
Product Disposal Information: (989) 496-6315
CHEMTREC: (800) 424-9300

MSDS No.: 01888196

Revision Date: 2003/04/03

Generic Description: Aminofunctional Siloxane
Physical Form: Liquid
Color: Not available
Odor: Amine-like odor

NFPA Profile: Health 3 Flammability 2 Instability/Reactivity 0

Note: NFPA = National Fire Protection Association

2. OSHA HAZARDOUS COMPONENTS

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
106842-44-8	> 60.0	Dimethyl, methyl (aminoethylaminoisobutyl) siloxane
556-67-2	5.0 - 10.0	Octamethylcyclotetrasiloxane
541-02-6	3.0 - 7.0	Decamethylcyclopentasiloxane

The above components are hazardous as defined in 29 CFR 1910.1200.

3. EFFECTS OF OVEREXPOSURE

Acute Effects

Eye: Direct contact may cause severe irritation.

Skin: May cause moderate irritation.

Inhalation: Mist may seriously irritate nose, throat, and lungs depending on concentration and duration of exposure. Aerosol mist highly toxic by inhalation.

Oral: Low ingestion hazard in normal use.

Prolonged/Repeated Exposure Effects

Skin: Repeated or prolonged exposure may irritate seriously.

Inhalation: Overexposure by inhalation may injure the following organ(s): Reproductive System.

Oral: No known applicable information.

Signs and Symptoms of Overexposure

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DOW CORNING(R) Q2-8220 CONDITIONING ADDITIVE

No known applicable information.

Medical Conditions Aggravated by Exposure

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

4. FIRST AID MEASURES

Eye: Immediately flush with water for 15 minutes. Get medical attention.

Skin: Remove from skin and wash thoroughly with soap and water or waterless cleanser. Get medical attention if irritation or other ill effects develop or persist.

Inhalation: Remove to fresh air. Get immediate medical attention.

Oral: No first aid should be needed.

Comments: Treat according to person's condition and specifics of exposure.

5. FIRE FIGHTING MEASURES

Flash Point: 144.9 °F / 62.7 °C (Pensky-Martens Closed Cup)

Autoignition Temperature: Not determined.

Flammability Limits in Air: Not determined.

Extinguishing Media: On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO₂), dry chemical or water spray. Water can be used to cool fire exposed containers.

Fire Fighting Measures: Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.

Unusual Fire Hazards: None.

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following hazardous decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Formaldehyde. Nitrogen oxides.

6. ACCIDENTAL RELEASE MEASURES

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DOW CORNING(R) Q2-8220 CONDITIONING ADDITIVE

Containment/Clean up: Determine whether to evacuate or isolate the area according to your local emergency plan. Observe all personal protection equipment recommendations described in Sections 5 and 8. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbant. Clean area as appropriate since some silicone materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, state and federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which federal, state and local laws and regulations are applicable. Sections 13 and 15 of this MSDS provide information regarding certain federal and state requirements.

Note: See section 8 for Personal Protective Equipment for Spills. Call Dow Corning Corporation, (989) 496-5900, if additional information is required.

7. HANDLING AND STORAGE

Use with adequate ventilation. Avoid eye contact. Avoid skin contact. Do not breathe vapor, mist, dust, or fumes. Keep container closed.

Static electricity will accumulate and may ignite vapors. Prevent a possible fire hazard by bonding and grounding or inert gas purge. Keep container closed and away from heat, sparks, and flame.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

<u>CAS Number</u>	<u>Component Name</u>	<u>Exposure Limits</u>
556-67-2	Octamethylcyclotetrasiloxane	Dow Corning guide: TWA 10 ppm.
541-02-6	Decamethylcyclopentasiloxane	See Section 11 comments.

Engineering Controls

Local Ventilation: Recommended.
General Ventilation: Recommended.

Personal Protective Equipment for Routine Handling

Eyes: Use chemical worker's goggles.

Skin: Wash at mealtime and end of shift. If skin contact occurs, change contaminated clothing as soon as possible and thoroughly flush affected areas with cool water. Chemical protective gloves are recommended.

Suitable Gloves: Silver Shield(R). 4H(R).



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Inhalation: Use respiratory protection unless adequate local exhaust ventilation is provided or air sampling data show exposures are within recommended exposure guidelines. Industrial Hygiene Personnel can assist in judging the adequacy of existing engineering controls.

Suitable Respirator: Organic vapor respirator for overexposures to vapors. As a minimum in situations where there is a potential for airborne misting or aerosolization use a full-face air purifying respirator equipped with combination organic vapor/dust-mist cartridges. Industrial hygiene personnel can assist with the selection of specific respirators.

Personal Protective Equipment for Spills

Eyes: Use full face respirator.

Skin: Wash at mealtime and end of shift. If skin contact occurs, change contaminated clothing as soon as possible and thoroughly flush affected areas with cool water. Chemical protective gloves are recommended.

Inhalation/Suitable Respirator: Organic vapor respirator for overexposures to vapors. As a minimum in situations where there is a potential for airborne misting or aerosolization use a full-face air purifying respirator equipped with combination organic vapor/dust-mist cartridges. Industrial hygiene personnel can assist with the selection of specific respirators.

Precautionary Measures: Avoid eye contact. Avoid skin contact. Do not breathe vapor, mist, dust, or fumes. Keep container closed. Use reasonable care.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions. For further information regarding aerosol inhalation toxicity, please refer to the guidance document regarding the use of silicone-based materials in aerosol applications that has been developed by the silicone industry (www.SEHSC.com) or contact the Dow Corning customer service group.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: Liquid
Color: Not available
Odor: Amine-like odor
Specific Gravity @ 25°C: 0.97
Viscosity: 130 cSt

Freezing/Melting Point: Not determined.
Boiling Point: > 35C/95F
Vapor Pressure @ 25°C: Not determined.
Vapor Density: Not determined.
Solubility in Water: Not determined.
pH: Not determined.
Volatile Content: Not determined.

Note: The above information is not intended for use in preparing product specifications. Contact Dow Corning before writing specifications.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.

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Hazardous Polymerization:	Hazardous polymerization will not occur.
Conditions to Avoid:	None.
Materials to Avoid:	Oxidizing material can cause a reaction.

11. TOXICOLOGICAL INFORMATION**Component Toxicology Information**

In separate studies, rats exposed via inhalation to aerosolized dimethyl, methyl(aminoethyl aminoisobutyl)siloxane and dimethyl (aminoethyl aminopropyl)methylsiloxane exhibited respiratory irritant toxicity. The 4 hour LC50's were <0.5 mg/L. These responses have not been observed in animals exposed via other routes (oral ingestion and dermal).

A 2 year combined chronic/carcinogenicity assay was conducted on decamethylcyclotetrasiloxane (D5). Fischer-344 rats were exposed by whole-body vapor inhalation 6 hrs/day, 5 days/week for up to 24 months to 0, 10, 40, or 160 ppm of D5. A statistically significant increase in the trend for uterine endometrial tumors was observed in female rats exposed for 24 months at 160 ppm. Whether or not this increase in incidence is truly related to the exposure to decamethylcyclotetrasiloxane is questionable and yet to be determined. The 160 ppm exposure concentration greatly exceeds workplace or consumer exposure. It is unlikely that industrial, commercial or consumer uses of products containing D5 would result in a significant risk to humans. The exposure guideline will be reevaluated when a better understanding of the significance of this new data is developed.

Repeated inhalation or oral exposure of mice and rats to octamethylcyclotetrasiloxane and decamethylcyclotetrasiloxane produced an increase in liver size. No gross histopathological or significant clinical chemistry effects were observed. An increase in liver metabolizing enzymes, as well as a transient increase in the number of normal cells (hyperplasia) followed by an increase in cell size (hypertrophy) were determined to be the underlying causes of the liver enlargement. The biochemical mechanisms producing these effects are highly sensitive in rodents, while similar mechanisms in humans are insensitive. Good industrial hygiene practice minimizes inhalation exposure to any chemical. Dow Corning has set an exposure guideline of 10 ppm TWA for these two materials.

In developmental toxicity studies in which rats and rabbits were exposed to octamethylcyclotetrasiloxane by vapor inhalation at concentrations up to 700 ppm and 500 ppm respectively, no teratogenic effects were observed.

Octamethylcyclotetrasiloxane administered to rats by whole body inhalation at concentrations of 500 and 700 ppm for 70 days prior to mating, through mating, gestation and lactation resulted in decreases in live litter size. Additionally, increases in the incidence of deliveries of offspring extending over an unusually long time period (dystocia) were observed at these concentrations. Statistically significant alterations in these parameters were not observed in the lower concentrations evaluated (300 and 70 ppm). In a previous range-finding study, rats exposed to vapor concentrations of 700 ppm had decreases in the number of implantation sites and live litter size. The significance of these findings to humans is not known.

A 2 yr combined chronic/carcinogenicity assay was conducted on octamethylcyclotetrasiloxane (D4). Fischer-344 rats were exposed by whole-body vapor inhalation 6 hrs/day, 5 days/week for up to 104 weeks to 0, 10, 30, 150 or 700 ppm of D4. A statistically significant increase in incidence of (uterine) endometrial cell hyperplasia and uterine adenomas (benign tumors) was observed in female rats at 700 ppm. Since these effects only occurred at 700 ppm, a level that greatly exceeds typical workplace or consumer exposure, it is unlikely that industrial, commercial or consumer uses of products containing OMCTS/D4 would result in a significant risk to humans.

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DOW CORNING(R) Q2-8220 CONDITIONING ADDITIVE

Special Hazard Information on Components

Reproductive Effects

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
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556-67-2	5.0 - 10.0	Octamethylcyclotetrasiloxane
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Evidence of reproductive effects in laboratory animals.

12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

Complete information is not yet available.

Environmental Effects

Complete information is not yet available.

Fate and Effects in Waste Water Treatment Plants

Complete information is not yet available.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

13. DISPOSAL CONSIDERATIONS

RCRA Hazard Class (40 CFR 261)

When a decision is made to discard this material, as received, is it classified as a hazardous waste? No

State or local laws may impose additional regulatory requirements regarding disposal.

Call Dow Corning Corporate Environmental Management, (989) 496-6315, if additional information is required.

14. TRANSPORT INFORMATION

DOT Road Shipment Information (49 CFR 172.101)

Proper Shipping Name: COMBUSTIBLE LIQUID, N.O.S.

Hazard Technical Name: POLYSILOXANE

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Hazard Class: COMBUSTIBLE LIQUID

UN/NA Number: NA1993

Packing Group: III

Ocean Shipment (IMDG)

Not subject to IMDG code.

Air Shipment (IATA)

Not subject to IATA regulations.

Call Dow Corning Transportation, (989) 496-8577, if additional information is required.

15. REGULATORY INFORMATION

Contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA Status: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

EPA SARA Title III Chemical Listings

Section 302 Extremely Hazardous Substances:

None.

Section 304 CERCLA Hazardous Substances:

None.

Section 312 Hazard Class:

Acute: Yes
Chronic: Yes
Fire: Yes
Pressure: No
Reactive: No

Section 313 Toxic Chemicals:

None present or none present in regulated quantities.

Supplemental State Compliance Information

California

Warning: This product contains the following chemical(s) listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as being known to cause cancer, birth defects or other reproductive harm.



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DOW CORNING(R) Q2-8220 CONDITIONING ADDITIVE

None known.

Massachusetts

No ingredient regulated by MA Right-to-Know Law present.

New Jersey

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
106842-44-8	> 60.0	Dimethyl, methyl (aminoethylaminoisobutyl) siloxane
556-67-2	5.0 - 10.0	Octamethylcyclotetrasiloxane
541-02-6	3.0 - 7.0	Decamethylcyclopentasiloxane
None	1.0 - 5.0	Dimethylcyclsiloxanes

Pennsylvania

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
106842-44-8	> 60.0	Dimethyl, methyl (aminoethylaminoisobutyl) siloxane
556-67-2	5.0 - 10.0	Octamethylcyclotetrasiloxane
541-02-6	3.0 - 7.0	Decamethylcyclopentasiloxane

16. OTHER INFORMATION

Prepared by: Dow Corning Corporation

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

(R) indicates Registered Trademark

**DOW CORNING****DOW CORNING CORPORATION**
Material Safety Data Sheet

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DOW CORNING(R) 190 FLUID**1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY**Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686**24 Hour Emergency Telephone: (989) 496-5900**
Customer Service: (989) 496-6000
Product Disposal Information: (989) 496-6315
CHEMTREC: (800) 424-9300

MSDS No.: 01013041

Revision Date: 2001/09/26

Generic Description: Silicone

Physical Form: Liquid

Color: Amber

Odor: Characteristic odor

NFPA Profile: Health 1 Flammability 2 Instability/Reactivity 0

Note: NFPA = National Fire Protection Association

2. OSHA HAZARDOUS COMPONENTS

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
67-63-0	<1.0	Isopropyl alcohol
556-67-2	<1.0	Octamethylcyclotetrasiloxane

The above components are hazardous as defined in 29 CFR 1910.1200.

3. EFFECTS OF OVEREXPOSUREAcute Effects

Eye: Direct contact may cause mild irritation.

Skin: May cause mild irritation.

Inhalation: No significant effects expected from a single short-term exposure.

Oral: Low ingestion hazard in normal use.

Prolonged/Repeated Exposure Effects

Skin: No known applicable information.

Inhalation: No known applicable information.

Oral: No known applicable information.

Signs and Symptoms of Overexposure

No known applicable information.




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Medical Conditions Aggravated by Exposure

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

4. FIRST AID MEASURES

Eye:	Immediately flush with water for 15 minutes.
Skin:	No first aid should be needed.
Inhalation:	No first aid should be needed.
Oral:	No first aid should be needed.
Comments:	Treat according to person's condition and specifics of exposure.

5. FIRE FIGHTING MEASURES

Flash Point:	160.7 °F / 71.5 °C (Pensky-Martens Closed Cup)
Autoignition Temperature:	Not determined.
Flammability Limits in Air:	Not determined.
Extinguishing Media:	On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO ₂), dry chemical or water spray. Water can be used to cool fire exposed containers.
Fire Fighting Measures:	Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.
Unusual Fire Hazards:	None.

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following hazardous decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Hydrogen. Formaldehyde.

6. ACCIDENTAL RELEASE MEASURES

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DOW CORNING(R) 190 FLUID

Containment/Clean up: Determine whether to evacuate or isolate the area according to your local emergency plan. Observe all personal protection equipment recommendations described in Sections 5 and 8. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbant. Clean area as appropriate since some silicone materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, state and federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which federal, state and local laws and regulations are applicable. Sections 13 and 15 of this MSDS provide information regarding certain federal and state requirements.

Note: See section 8 for Personal Protective Equipment for Spills. Call Dow Corning Corporation, (989) 496-5900, if additional information is required.

7. HANDLING AND STORAGE

Use with adequate ventilation. Avoid eye contact.

Use reasonable care and store away from oxidizing materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

There are no components with workplace exposure limits.

Engineering Controls

Local Ventilation: None should be needed.
General Ventilation: Recommended.

Personal Protective Equipment for Routine Handling

Eyes: Use proper protection - safety glasses as a minimum.
Skin: Washing at mealtime and end of shift is adequate.
Suitable Gloves: No special protection needed.
Inhalation: No respiratory protection should be needed.
Suitable Respirator: None should be needed.

DOW CORNING CORPORATION
Material Safety Data Sheet**DOW CORNING(R) 190 FLUID****Personal Protective Equipment for Spills**

Eyes: Use proper protection - safety glasses as a minimum.

Skin: Washing at mealtime and end of shift is adequate.

Inhalation/Suitable
Respirator: No respiratory protection should be needed.

Precautionary Measures: Avoid eye contact. Use reasonable care.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: Liquid
Color: Amber
Odor: Characteristic odor
Specific Gravity @ 25°C: 1.037
Viscosity: 1750 cSt
Freezing/Melting Point: Not determined.
Boiling Point: > 35C/95F
Vapor Pressure @ 25°C: Not determined.
Vapor Density: Not determined.
Solubility in Water: Not determined.
pH: Not determined.
Volatile Content: Not determined.

Note: The above information is not intended for use in preparing product specifications. Contact Dow Corning before writing specifications.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.

Hazardous Polymerization: Hazardous polymerization will not occur.

Conditions to Avoid: None.

Materials to Avoid: Oxidizing material can cause a reaction.

11. TOXICOLOGICAL INFORMATION**Acute Toxicology Data for Product**

Complete information is not yet available.

Component Toxicology Information

Complete information is not yet available.

DOW CORNING

DOW CORNING CORPORATION

Material Safety Data Sheet

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DOW CORNING(R) 190 FLUID

Special Hazard Information on Components

No known applicable information.

12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

Complete information is not yet available.

Environmental Effects

Complete information is not yet available.

Fate and Effects in Waste Water Treatment Plants

Complete information is not yet available.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	≤ 1	>1 and ≤ 100	>100
Acute Terrestrial Toxicity	≤ 100	>100 and ≤ 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

13. DISPOSAL CONSIDERATIONS

RCRA Hazard Class (40 CFR 261)

When a decision is made to discard this material, as received, is it classified as a hazardous waste? No

State or local laws may impose additional regulatory requirements regarding disposal.

Call Dow Corning Corporate Environmental Management, (989) 496-6315, if additional information is required.

DOW CORNING

DOW CORNING CORPORATION
Material Safety Data Sheet

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DOW CORNING(R) 190 FLUID

14. TRANSPORT INFORMATION

DOT Road Shipment Information (49 CFR 172.101)

Proper Shipping Name: COMBUSTIBLE LIQUID, N.O.S.

Hazard Technical Name: ISOPROPANOL/CYCLOSILOXANE

Hazard Class: COMBUSTIBLE LIQUID

UN/NA Number: NA1993

Packing Group: III

Remarks: Above applies only to containers over 119 gallons or 450 liters.

Ocean Shipment (IMDG)

Not subject to IMDG code.

Air Shipment (IATA)

Not subject to IATA regulations.

Call Dow Corning Transportation, (989) 496-8577, if additional information is required.

15. REGULATORY INFORMATION

Contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA Status: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

EPA SARA Title III Chemical Listings

Section 302 Extremely Hazardous Substances:

None.

Section 304 CERCLA Hazardous Substances:

None.

DOW CORNING

DOW CORNING CORPORATION

Material Safety Data Sheet

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DOW CORNING(R) 190 FLUID

Section 312 Hazard Class:

Acute: No
Chronic: No
Fire: Yes
Pressure: No
Reactive: No

Section 313 Toxic Chemicals:

None present or none present in regulated quantities.

Supplemental State Compliance Information**California**

Warning: This product contains the following chemical(s) listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as being known to cause cancer, birth defects or other reproductive harm.

None known.

Massachusetts

No ingredient regulated by MA Right-to-Know Law present.

New Jersey

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
68037-64-9	40.0 - 70.0	Dimethyl, methyl (propylpolyethylene oxide polypropylene oxide,acetate
56090-69-8	30.0 - 60.0	Poly(ethylene oxide propylene oxide) monoallyl ether acetate
39362-51-1	7.0 - 13.0	Polyether polyol acetate

Pennsylvania

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
68037-64-9	40.0 - 70.0	Dimethyl, methyl (propylpolyethylene oxide polypropylene oxide,acetate
56090-69-8	30.0 - 60.0	Poly(ethylene oxide propylene oxide) monoallyl ether acetate
39362-51-1	7.0 - 13.0	Polyether polyol acetate

16. OTHER INFORMATION

Prepared by: Dow Corning Corporation

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

(R) indicates Registered Trademark

DOW CORNING

DOW CORNING CORPORATION

Material Safety Data Sheet

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DOW CORNING(R) 5324 FLUID

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

24 Hour Emergency Telephone: (989) 496-5900
Customer Service: (989) 496-6000
Product Disposal Information: (989) 496-6315
CHEMTREC: (800) 424-9300

MSDS No.: 02122901

Revision Date: 2002/01/23

Generic Description: Polyglycol.
Physical Form: Liquid
Color: Amber
Odor: Characteristic odor

NFPA Profile: Health 1 Flammability 2 Instability/Reactivity 0

Note: NFPA = National Fire Protection Association

2. OSHA HAZARDOUS COMPONENTS

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
541-02-6	<1.0	Decamethylcyclopentasiloxane
556-67-2	<1.0	Octamethylcyclotetrasiloxane

The above components are hazardous as defined in 29 CFR 1910.1200.

3. EFFECTS OF OVEREXPOSURE

Acute Effects

Eye: Direct contact may cause mild irritation.
Skin: No significant irritation expected from a single short-term exposure.
Inhalation: No significant effects expected from a single short-term exposure.
Oral: Low ingestion hazard in normal use.

Prolonged/Repeated Exposure Effects

Skin: Repeated or prolonged exposure may cause irritation.
Inhalation: No known applicable information.
Oral: No known applicable information.

Signs and Symptoms of Overexposure

No known applicable information.

Medical Conditions Aggravated by Exposure




DOW CORNING CORPORATION

Material Safety Data Sheet

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DOW CORNING(R) 5324 FLUID

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

4. FIRST AID MEASURES

Eye: Immediately flush with water for 15 minutes.

Skin: No first aid should be needed.

Inhalation: No first aid should be needed.

Oral: No first aid should be needed.

Comments: Treat according to person's condition and specifics of exposure.

5. FIRE FIGHTING MEASURES

Flash Point: 179.6 °F / 82 °C (Pensky-Martens Closed Cup)

Autoignition Temperature: Not determined.

Flammability Limits in Air: Not determined.

Extinguishing Media: On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO₂), dry chemical or water spray. Water can be used to cool fire exposed containers.

Fire Fighting Measures: Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.

Unusual Fire Hazards: None.

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following hazardous decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Hydrogen. Formaldehyde.

6. ACCIDENTAL RELEASE MEASURES

DOW CORNING CORPORATION
Material Safety Data Sheet**DOW CORNING(R) 5324 FLUID**

Containment/Clean up: Determine whether to evacuate or isolate the area according to your local emergency plan. Observe all personal protection equipment recommendations described in Sections 5 and 8. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbant. Clean area as appropriate since some silicone materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, state and federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which federal, state and local laws and regulations are applicable. Sections 13 and 15 of this MSDS provide information regarding certain federal and state requirements.

Note: See section 8 for Personal Protective Equipment for Spills. Call Dow Corning Corporation, (989) 496-5900, if additional information is required.

7. HANDLING AND STORAGE

Use with adequate ventilation. Avoid eye contact.

Static electricity will accumulate and may ignite vapors. Prevent a possible fire hazard by bonding and grounding or inert gas purge. Keep container closed and away from heat, sparks, and flame.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Component Exposure Limits**

There are no components with workplace exposure limits.

Engineering Controls

Local Ventilation: Recommended.
General Ventilation: Recommended.

Personal Protective Equipment for Routine Handling

Eyes: Use proper protection - safety glasses as a minimum.
Skin: Washing at mealtime and end of shift is adequate.
Suitable Gloves: No special protection needed.
Inhalation: No respiratory protection should be needed.
Suitable Respirator: None should be needed.

Personal Protective Equipment for Spills

Eyes: Use proper protection - safety glasses as a minimum.
Skin: Washing at mealtime and end of shift is adequate.



DOW CORNING CORPORATION

Material Safety Data Sheet

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DOW CORNING(R) 5324 FLUID

Inhalation/Suitable No respiratory protection should be needed.
Respirator:

Precautionary Measures: Avoid eye contact. Use reasonable care.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: Liquid
Color: Amber
Odor: Characteristic odor
Specific Gravity @ 25°C: 1.04
Viscosity: 350 cSt
Freezing/Melting Point: Not determined.
Boiling Point: > 35C/95F
Vapor Pressure @ 25°C: Not determined.
Vapor Density: Not determined.
Solubility in Water: Not determined.
pH: Not determined.
Volatile Content: Not determined.

Note: The above information is not intended for use in preparing product specifications. Contact Dow Corning before writing specifications.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Hazardous polymerization will not occur.
Conditions to Avoid: None.
Materials to Avoid: Oxidizing material can cause a reaction.

11. TOXICOLOGICAL INFORMATION

Special Hazard Information on Components

No known applicable information.

12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

Complete information is not yet available.

Environmental Effects

Complete information is not yet available.

DOW CORNING

DOW CORNING CORPORATION

Material Safety Data Sheet

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DOW CORNING(R) 5324 FLUID

Fate and Effects in Waste Water Treatment Plants

Complete information is not yet available.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	≤ 1	>1 and ≤ 100	>100
Acute Terrestrial Toxicity	≤ 100	>100 and ≤ 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

13. DISPOSAL CONSIDERATIONS

RCRA Hazard Class (40 CFR 261)

When a decision is made to discard this material, as received, is it classified as a hazardous waste? No

State or local laws may impose additional regulatory requirements regarding disposal.

Call Dow Corning Corporate Environmental Management, (989) 496-6315, if additional information is required.

14. TRANSPORT INFORMATION

DOT Road Shipment Information (49 CFR 172.101)

Proper Shipping Name: COMBUSTIBLE LIQUID, N.O.S.

Hazard Technical Name: CYCLOSILOXANE

Hazard Class: COMBUSTIBLE LIQUID

UN/NA Number: NA1993

Packing Group: III

Remarks: Above applies only to containers over 119 gallons or 450 liters.

Ocean Shipment (IMDG)

Not subject to IMDG code.

Air Shipment (IATA)

Not subject to IATA regulations.

Call Dow Corning Transportation, (989) 496-8577, if additional information is required.

15. REGULATORY INFORMATION

Contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.



DOW CORNING CORPORATION

Material Safety Data Sheet

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DOW CORNING(R) 5324 FLUID

TSCA Status: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

EPA SARA Title III Chemical Listings

Section 302 Extremely Hazardous Substances:

None.

Section 304 CERCLA Hazardous Substances:

None.

Section 312 Hazard Class:

Acute: No
Chronic: No
Fire: Yes
Pressure: No
Reactive: No

Section 313 Toxic Chemicals:

None present or none present in regulated quantities.

Supplemental State Compliance Information

California

Warning: This product contains the following chemical(s) listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as being known to cause cancer, birth defects or other reproductive harm.

None known.

Massachusetts

No ingredient regulated by MA Right-to-Know Law present.

New Jersey

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
68937-54-2	> 60.0	Dimethyl, methyl(polyethylene oxide) siloxane
27274-31-3	7.0 - 13.0	Polyethylene oxide monoallyl ether
25322-68-3	3.0 - 7.0	Polyethylene glycol

Pennsylvania

DOW CORNING

DOW CORNING CORPORATION

Material Safety Data Sheet

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DOW CORNING(R) 5324 FLUID

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
68937-54-2	> 60.0	Dimethyl, methyl(polyethylene oxide) siloxane
27274-31-3	7.0 - 13.0	Polyethylene oxide monoallyl ether
25322-68-3	3.0 - 7.0	Polyethylene glycol

16. OTHER INFORMATION

Prepared by: Dow Corning Corporation

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

(R) indicates Registered Trademark

DOW CORNING

DOW CORNING CORPORATION

Material Safety Data Sheet

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DOW CORNING(R) Q2-5220 RESIN MODIFIER

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

24 Hour Emergency Telephone: (989) 496-5900
Customer Service: (989) 496-6000
Product Disposal Information: (989) 496-6315
CHEMTREC: (800) 424-9300

MSDS No.: 01909151

Revision Date: 2002/02/15

Generic Description: Silicone
Physical Form: Liquid
Color: Amber
Odor: Characteristic odor

NFPA Profile: Health 1 Flammability 1 Instability/Reactivity 0

Note: NFPA = National Fire Protection Association

2. OSHA HAZARDOUS COMPONENTS

None present. This is not a hazardous material as defined in the OSHA Hazard Communication Standard.

3. EFFECTS OF OVEREXPOSURE

Acute Effects

Eye: Direct contact may cause mild irritation.
Skin: No significant irritation expected from a single short-term exposure.
Inhalation: No significant effects expected from a single short-term exposure.
Oral: Low ingestion hazard in normal use.

Prolonged/Repeated Exposure Effects

Skin: Repeated or prolonged exposure may cause irritation.
Inhalation: No known applicable information.
Oral: No known applicable information.

Signs and Symptoms of Overexposure

No known applicable information.

Medical Conditions Aggravated by Exposure

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

DOW CORNING



DOW CORNING CORPORATION

Material Safety Data Sheet

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DOW CORNING(R) Q2-5220 RESIN MODIFIER

4. FIRST AID MEASURES

Eye: Immediately flush with water for 15 minutes.

Skin: No first aid should be needed.

Inhalation: No first aid should be needed.

Oral: No first aid should be needed.

Comments: Treat according to person's condition and specifics of exposure.

5. FIRE FIGHTING MEASURES

Flash Point: 212 °F / 100 °C (Pensky-Martens Closed Cup)

Autoignition Temperature: Not determined.

Flammability Limits in Air: Not determined.

Extinguishing Media: On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO₂), dry chemical or water spray. Water can be used to cool fire exposed containers.

Fire Fighting Measures: Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.

Unusual Fire Hazards: None.

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following hazardous decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Formaldehyde.

6. ACCIDENTAL RELEASE MEASURES



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DOW CORNING(R) Q2-5220 RESIN MODIFIER

Containment/Clean up: Determine whether to evacuate or isolate the area according to your local emergency plan. Observe all personal protection equipment recommendations described in Sections 5 and 8. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbant. Clean area as appropriate since some silicone materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, state and federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which federal, state and local laws and regulations are applicable. Sections 13 and 15 of this MSDS provide information regarding certain federal and state requirements.

Note: See section 8 for Personal Protective Equipment for Spills. Call Dow Corning Corporation, (989) 496-5900, if additional information is required.

7. HANDLING AND STORAGE

Use with adequate ventilation. Trace quantities of ethylene oxide (EO) may be present and could accumulate in headspace of storage and transport vessels, but are not expected to cause EO concentrations above exposure limits. Avoid eye contact.

Use reasonable care and store away from oxidizing materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

There are no components with workplace exposure limits.

Engineering Controls

Local Ventilation: Recommended. •
General Ventilation: Recommended.

Personal Protective Equipment for Routine Handling

Eyes: Use proper protection - safety glasses as a minimum.
Skin: Washing at mealtime and end of shift is adequate.
Suitable Gloves: No special protection needed.
Inhalation: No respiratory protection should be needed.
Suitable Respirator: None should be needed.

Personal Protective Equipment for Spills

Eyes: Use proper protection - safety glasses as a minimum.

DOW CORNING



DOW CORNING CORPORATION

Material Safety Data Sheet

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DOW CORNING(R) Q2-5220 RESIN MODIFIER

Skin: Washing at mealtime and end of shift is adequate.

Inhalation/Suitable Respirator: No respiratory protection should be needed.

Precautionary Measures: Avoid eye contact. Use reasonable care.

Comments: Trace quantities of ethylene oxide (EO) may be present and could accumulate in headspace of storage and transport vessels, but are not expected to cause EO concentrations above exposure limits.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: Liquid
Color: Amber
Odor: Characteristic odor
Specific Gravity @ 25°C: 1.03
Viscosity: 925 cSt
Freezing/Melting Point: Not determined.
Boiling Point: > 35C/95F
Vapor Pressure @ 25°C: Not determined.
Vapor Density: Not determined.
Solubility in Water: Not determined.
pH: Not determined.
Volatile Content: Not determined.

Note: The above information is not intended for use in preparing product specifications. Contact Dow Corning before writing specifications.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.

Hazardous Polymerization: Hazardous polymerization will not occur.

Conditions to Avoid: None.

Materials to Avoid: Oxidizing material can cause a reaction.

11. TOXICOLOGICAL INFORMATION

Special Hazard Information on Components

No known applicable information.

12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

DOW CORNING**DOW CORNING CORPORATION**
Material Safety Data Sheet

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DOW CORNING(R) Q2-5220 RESIN MODIFIER

Complete information is not yet available.

Environmental Effects

Complete information is not yet available.

Fate and Effects in Waste Water Treatment Plants

Complete information is not yet available.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

13. DISPOSAL CONSIDERATIONS**RCRA Hazard Class (40 CFR 261)**

When a decision is made to discard this material, as received, is it classified as a hazardous waste? No

State or local laws may impose additional regulatory requirements regarding disposal.

Call Dow Corning Corporate Environmental Management, (989) 496-6315, if additional information is required.

14. TRANSPORT INFORMATION**DOT Road Shipment Information (49 CFR 172.101)**

Hazard Label(s): CANADA - WHMIS LABEL REQUIRED

Not subject to DOT.

Ocean Shipment (IMDG)

Not subject to IMDG code.

Air Shipment (IATA)

Not subject to IATA regulations.

Call Dow Corning Transportation, (989) 496-8577, if additional information is required.

15. REGULATORY INFORMATION

Contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

DOW CORNING(R) Q2-5220 RESIN MODIFIER

TSCA Status: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

EPA SARA Title III Chemical Listings**Section 302 Extremely Hazardous Substances:**

None.

Section 304 CERCLA Hazardous Substances:

None.

Section 312 Hazard Class:

Acute: No

Chronic: No

Fire: No

Pressure: No

Reactive: No

Section 313 Toxic Chemicals:

None present or none present in regulated quantities.

Supplemental State Compliance Information**California**

Warning: This product contains the following chemical(s) listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as being known to cause cancer, birth defects or other reproductive harm.

None known.

Massachusetts

No ingredient regulated by MA Right-to-Know Law present.

New Jersey

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
68037-62-7	40.0 - 70.0	Dimethyl, methyl(PEO/PO), methyl(PEO, acetate) siloxane
56090-69-8	30.0 - 60.0	Poly(ethylene oxide propylene oxide) monoallyl ether acetate
27252-87-5	7.0 - 13.0	Polyethylene glycol monoallyl ether acetate
39362-51-1	7.0 - 13.0	Polyether polyol acetate

DOW CORNING**DOW CORNING CORPORATION**
Material Safety Data Sheet

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DOW CORNING(R) Q2-5220 RESIN MODIFIER

27252-83-1 1.0 - 5.0 Polyethylene glycol diacetate

Pennsylvania

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
68037-62-7	40.0 - 70.0	Dimethyl, methyl(PEO/PO), methyl(PEO, acetate) siloxane
56090-69-8	30.0 - 60.0	Poly(ethylene oxide propylene oxide) monoallyl ether acetate
27252-87-5	7.0 - 13.0	Polyethylene glycol monoallyl ether acetate
39362-51-1	7.0 - 13.0	Polyether polyol acetate

16. OTHER INFORMATION

Prepared by: Dow Corning Corporation

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

(R) indicates Registered Trademark

File No: NA/103

Date: May 3, 1993

**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION
AND ASSESSMENT SCHEME**

FULL PUBLIC REPORT

**Siloxanes and silicones, di Me, 3-[3-[(3-cocoaminopropyl)
dimethylammonio] 2-hydroxypropoxy] propyl group terminated,
acetates (salts)**

This Assessment has been compiled in accordance with the provisions of the Industrial Chemicals (Notification and Assessment) Act 1989, as amended and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by Worksafe Australia which also conducts the occupational health & safety assessment. The assessment of environmental hazard is conducted by the Department of the Arts, Sport, the Environment and Territories and the assessment of public health is conducted by the Department of Health, Housing and Community Services.

For the purposes of subsection 78(1) of the Act, copies of this full public report may be inspected by the public at the Library, Worksafe Australia, 92-94 Parramatta Road, Camperdown NSW 2050, between the hours of 10.00 a.m. and 12.00 noon and 2.00 p.m. and 4.00 p.m. each week day except on public holidays.

For Enquiries please contact Ms Karen Bell at:

Street Address: 92 Parramatta Rd Camperdown, NSW 2050, AUSTRALIA

Postal Address: GPO Box 58, Sydney 2001, AUSTRALIA

Telephone: (61) (02) 565-9466 **FAX** (61) (02) 565-9465

Director
Chemicals Notification and Assessment

FULL PUBLIC REPORT

Siloxanes and silicones, di Me, 3-[3-[(3-cocoaminopropyl) dimethylammonio] 2-hydroxypropoxy] propyl group terminated, acetates (salts)

1. APPLICANTS

International Sales and Marketing Pty Ltd/Salkat Australia Pty Ltd, 262 Highett Rd, Highett, Vic, 3190.

2. IDENTITY OF THE CHEMICAL

Chemical name: Siloxanes and silicones, di Me, 3-[3-[(3-cocoaminopropyl) dimethylammonio] 2-hydroxypropoxy] propyl group terminated, acetates (salts)

Chemical Abstracts Service
(CAS) Registry No.: 134737-05-6

Other names: Di-quaternised poly di-methylsiloxanespolysiloxanes (CTFA)

Trade names: ABIL Quat 3270, ABIL Quat 3272

Molecular formula: $C_{72}H_{166}N_4O_{19}Si_{10}$

$$\text{R}-\overset{\text{O}}{\underset{\text{H}}{\text{C}}}=\text{N}-(\text{CH}_2)_3-\overset{\text{CH}_3}{\underset{\text{CH}_3}{\text{N}^+}}-\text{CH}_2-\text{CH}(\text{OH})-\text{CH}_2-\text{O}-(\text{CH}_2)_3[\text{Si}(\text{CH}_3)_2\text{O}]_n\text{Si}(\text{CH}_3)_2\text{A}$$

A

$n = 9$ (ABIL Quat 3270) or 30 (ABIL Quat 3272)
 $\text{R} = \text{CH}_3-(\text{CH}_2)_x$

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Weight-average molecular weight:
Maximum percentage of low
molecular weight species
(molecular weight < 1000):      none
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Chemical name:	CAS No.:	Weight percentage:
Siloxanes and silocones, di me, 3-(oxiranylmethoxy) propyl group terminated	102782-97-8	57.9
Amide, coco, N-[3- (dimethylammonio) propyl]	68140-01-2	36.2
Acetic acid	64-19-7	5.9

Spectral data: The following spectra were provided for ABIL Quat 3270

An infra-red spectrum with major peaks at 3267, 2961, 2926, 2855, 1653, 1576, 1400, 1260, 1092, 1032 and 802 cm^{-1} .

A ^{13}C nuclear magnetic resonance spectrum with chemical shifts occurring at -0.6, 0.3, 0.5, 13.4, 22.0, 22.2, 22.7, 24.0, 25.2, 28.6, 28.8, 28.9, 29.0, 31.2, 35.4, 35.5, 44.6, 51.7, 62.8, 63.4, 72.2, 73.7, 76.7, 77.1, 77.5, 173.7 and 176.6 ppm relative to TMS.

An ^1H nuclear magnetic resonance spectrum was also provided, however the peak positions were not easily estimated from the scale.

3. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa:	the pure chemical is a highly viscous "liquid salt" trade products are amber liquids
Odour:	the trade products have an aromatic odour {if distinctive}
Glass-transition Temperature:	°C
Viscosity:	~400 mm^2s^{-1} (ABIL Quat 3270); ~1000 mm^2s^{-1} (ABIL Quat 3272)
Surface Tension:	~31.5 g/cm^3 (ABIL Quat 3270); ~44 g/cm^3 (ABIL Quat 3272) {for density}
Specific Gravity/Density:	~1014 kg/m^3 (ABIL Quat 3270); ~1008 kg/m^3 (ABIL Quat 3272) {for density}
Vapour Pressure:	0.07 mmHg @ 20°C (product)

Water Solubility:	the product is soluble in water; solubility decreasing with increasing degree of polymerisation of the dimethylpolysiloxane moiety g/L at 20°C
Fat Solubility:	
Partition Co-efficient:	
Hydrolysis as a function of pH:	no hydrolysis expected @ pH 4-9 @ pH <2 and >11, and @ >90°C, cleavage of Si-O-Si bonds of dimethylpolysiloxane is expected
Adsorption/Desorption:	
Dissociation Constant:	expected to dissociate completely
Flash Point:	90 °C for trade products
Flammability Limits:	
Oxidation Products:	at high temperatures the trade products oxidise giving rise to propionaldehyde, lactic acid, pyruvic acid and acetic acid.
Reactivity/Stability:	there is no specific reactivity
Methods to estimate melting and boiling point are not applicable as the notified polymer is a high viscous liquid.	

Partition coefficient was not measured due to the salt character of the notified polymer. The polymeric salt is expected to be completely dissociated.

The environmental properties of fluids have been well reviewed by Hamelink (1). Silicone fluids are very surface active because the flexible siloxane linkages permit alignment of the hydrophobic methyl substituents towards the non-polar phase, and of the polysiloxane backbone towards the polar phase. The polar medium is generally water, and apolar media to which polydimethylsiloxanes become attached may be textiles, sewage sludge, hair, algae, sediment etc. In aqueous environments, polydimethylsiloxanes are adsorbed onto sedimenting particles. Also, in the presence of nitrate ions, which exist at various concentrations in the environment, short chain siloxanes are photodegraded to the level of silicate within days (2).

Pyrolysis Products:	-----?
Decomposition Temperature:	 not supplied
Decomposition Products:	-----?
Autoignition Temperature:	°C
Explosive Properties:	
Particle size distribution:	range - µm mean - µm
Melting Point/Boiling Point:	°C
Vapour Pressure:	kPa at 25°C
Partition Co-efficient (n-octanol/water)	log P _{O/W} :
Adsorption/Desorption:	not measured
Particle size distribution:	range - µm mean - µm
Flammability Limits:	not measured
Autoignition Temperature:	not measured
Explosive Properties:	not measured

4. PURITY OF THE CHEMICAL

Degree of purity (of the notified chemical alone): >97%

Toxic or hazardous impurities: none

Non-hazardous impurity/impurities: none > 1% by weight

Maximum content of residual monomers/reactants: 0.3%

Additive:

Chemical name:	1,2 propanediol
Synonym:	propylene glycol
CAS No.:	57-55-6
Weight percentage:	~50

5. INDUSTRIAL USE

The notified chemical will initially be imported into Australia at 2000 kg/annum, with possible increases in import volume to meet future markets. The notified polymer will be imported in two formulations, ABIL Quat 3270 and ABIL Quat 3272, each containing 50% of the polymer in propylene glycol. These formulations will be used in the cosmetics industry as shampoo/conditioner components (final polymer concentration up to 2.5%). Abil-Quat 3272 which is of higher molecular weight than Abil-Quat 3270 is more compatible with anionic surfactants than the latter. Therefore, Abil-Quat 3272 is preferred for use in shampoos, shower- and bath preparations and liquid soaps, whereas the most important areas of application for Abil-Quat 3270 are conditioning hair rinses.

Formulations containing the notified polymer may also find applications as ingredients for fabric softeners, corrosion inhibitors, antistatic additives for plastics, pigment dispersants and fibre lubricants (final polymer concentration up to 2%).

6. OCCUPATIONAL EXPOSURE

The notified polymer will be imported in 50 kg drums in the two formulations ABIL Quat 3270 and ABIL Quat 3272. Both imported formulations will contain 50% polymer in ethylene glycol. They

will be transported by road to five manufacturing plants. Workers at these sites will weigh and mix the polymer solutions into shampoo or conditioner formulations, and package the final products for shipment to the end users (wholesalers, hair salons). ABIL Quat 3270 or ABIL Quat 3272 will constitute no more than 5% of shampoos, skin cleansing products or conditioning hair rinses (0.2-2% in shampoos, 0.5-4% in rinses). Other constituents of these products will be anionic surfactants, water insoluble components, solubilizers and pearlizing agents.

Worker exposure will vary at each manufacturing plant. The number of workers exposed to the notified polymer at Wella Australia, Schwarzkopf Pty Ltd, Alf Tooth Enterprises Pty Ltd and Avon Products/Innoxia is estimated at 7, 3, 2 and 2 respectively. It is envisaged that half of the volume of polymer imported will be used by Wella Australia (ie, 1000 kg). The time spent on each task (eg mixing, weighing) will also vary at each site, making an accurate measure of the exposure difficult.

The notifier states that special guidelines and precautions will be used during production such as the use of enclosed systems when splashings or spillages are anticipated and the use of personal protective equipment. The number of workers handling the polymer is not anticipated to be large and most worker contact with the chemical is expected to be low under normal use situations.

Hair salon workers will also be exposed to the notified polymer, however, the concentration of notified polymer will at most be 2.5%.

7. PUBLIC EXPOSURE

The notified polymer is to be imported into Australia as a 50% solution in propylene glycol. It will be transported by road to five clients, where it will be incorporated into shampoo and conditioner products, which will be sold to wholesalers and hair salons, and eventually to the public. The concentration of the notified polymer in shampoos and conditioners will at most be 2.5%.

One of the clients has indicated that disposal of any unspent polymer which is approximated at 8-10 kg/annum will be in the company's waste-water treatment plant. Discharge from the plant

to the sewer is in accordance with Council's discharge specifications. Furthermore, since the substance is to be used in shampoos and conditioners, disposal of the spent products containing the notified polymer will occur in the household and hair salons, probably via the sewage system.

8. ENVIRONMENTAL EXPOSURE

. Release

The notifier has provided information on the production procedures of one of its customers, Cosmetic Products Pty Ltd (trading as Wella). It states they have in place procedures aimed at reducing the level of waste in all areas of operations. The company's factory is equipped with a modern waste water treatment plant (dissolved air flotation with chemical pre-treatment and biological oxidation). Discharge from the plant to sewer is monitored on a regular basis by the company and the Local Council's requirement in regard to the company's discharge specifications. Shampoo waste is currently running at approximately 1.2 - 1.5% of manufactured quantity depending on product's viscosity. The company is aiming to reduce this to below 1% by the end of 1993.

The company estimates that they would be utilising approximately 1000 kg of Abil-Quat 3272 in 1993 to produce 80 to 100 tonnes of finished shampoo products containing the notified substance. This would translate to a maximum of 8 - 10 kg of the notified substance waste being generated in a 12 monthly period by the company prior to treatment.

Waste polymer from the other shampoo/conditioner formulating sites is likely to enter the sewer system.

The polymer will be released to the aquatic environment when consumers wash the polymer residues from their hair.

. Fate

When the polymer enters sewer systems it is likely to be adsorbed to suspended matter and become associated with sludge at wastewater treatment plants. Any polymer that remains in treated waste water and enters receiving waters is likely to be degraded to silicates by photolysis.

Sludge containing the notified substance may be incinerated or landfilled. Incineration would destroy the substance and liberate oxides of carbon, nitrogen and silicon, while disposal to landfill would immobilise it. Polydimethylsiloxanes are thought to be unstable in terrestrial environments, where clays can catalyse cleavage of the siloxane linkage, but are probably more permanent in aquatic sediment as the catalytic action of clays is inversely related to their degree of hydration (1).

The notified substance contains an amide linkage that may be susceptible to hydrolysis. However, hydrolysis of the notified substance is unlikely under environmental conditions due to its hydrolytic stability and expected adsorption to surfaces.

9. EVALUATION OF TOXICOLOGICAL DATA

Toxicological data are not required for polymers with number-average molecular weight greater than 1000 under the *Industrial Chemicals (Notification and Assessment) Act 1989 as amended* (the Act). However, studies were conducted using ABIL Quat 3270 and the data submitted for assessment.

9.1 Acute Toxicity

Table1 Summary of the acute toxicity of ABIL Quat 3270

Test	Species	Outcome	Reference
Oral	Rat	LD ₅₀ > 5091 mg/kg	1
Skin	Rabbit	non-irritant	2
Eye	Rabbit	non-irritant	3

9.1.1 Oral Toxicity (3)

This study was conducted in accordance with OECD guideline No: 401 (6).

Undiluted ABIL Quat 3270 (5 ml/kg) was administered by stomach tube to 10 Wistar rats (5 male and 5 female). Clinical

observations were made over a 14 day period. All rats were subjected to necropsy. No deaths occurred and all rats showed no clinical or toxicological symptoms over the entire observation period. Upon necropsy at the end of the 14 day observation period, no macroscopic lesions were reported in the cranial, thoracic and abdominal cavity. Bodyweight gains were unaffected by treatment.

Results of this study indicate an acute oral LD₅₀ of > 5091 mg/kg (equivalent to > 5 ml/kg) in rats of both sexes for ABIL Quat 3270.

9.1.2 Skin Irritation (4)

This study was conducted in accordance with OECD guideline No: 404 (7).

A single dose of 0.5 ml diluted ABIL Quat 3270 (10% w/w in distilled water) was applied occlusively to the abraded and intact skin of 6 New Zealand white rabbits. Twenty-four hours later, the dressings were removed and the test areas wiped to prevent further exposure. The test sites were evaluated 24 and 72 hours after the initial application. Very slight to well-defined erythema was observed in all animals on both abraded and non-abraded sites 24 hours after dosing. By 72 hours, erythema had decreased in two animals and completely disappeared in a further 3. No oedema was observed at either 24 or 72 hours. All rabbits appeared healthy and active during the test period.

Results of this study indicate that ABIL Quat 3270 is not a skin irritant in rabbits.

9.1.3 Eye Irritation (5)

This study was conducted in accordance with OECD guideline No: 405 (8).

A single dose of 0.1 ml 3% ABIL Quat 3270 in deionised water was instilled in the conjunctival sac of the left eye of each of 6 New Zealand white rabbits. The right eye served as the control. The treated eyes of 3 animals were washed 4 seconds after application with 10 ml luke warm water. Ocular reactions were assessed at 1, 24, 48 and 72 hours after treatment. Eye lesions were assessed

by means of 1% fluorescein (1 drop/eye) and UV-light for all but the 1 and 48 hour observations. All effects were scored according to Draize (described in 8). There was no evidence of corneal opacity or uveitis in any of the animals over the entire observation period. Erythema of the conjunctiva was observed in all rabbits, and these reactions persisted for the entire observation period in four of the animals (including 1 rabbit with rinsed eye). However the scores were not high enough to classify the test substance as an irritant. Chemosis was also present in all animals with obvious conjunctival swelling persisting for at least 24 hours in 5 of the animals.

The results of this study suggest that ABIL Quat 3270 is not an eye irritant in rabbits.

9.2 Overall Assessment of Toxicological Data

In rat studies, ABIL Quat 3270 had low acute oral toxicity (LD₅₀ > 5091 mg/kg). It was not an irritant to eyes or skin in the rabbit.

10. ASSESSMENT OF ENVIRONMENTAL EFFECTS

No ecotoxicological data were provided, which is acceptable for polymers of number-average molecular weight greater than 1000 according to the Act.

The high molecular weight of the substance suggests that it will not cross biological membranes, and will therefore be of low toxicity. It is well accepted that polydimethylsiloxane fluids become permanent residents of sediment but should not exert adverse environmental effects. Physical effects such as surface entrapment have been observed when testing aquatic invertebrates in clean laboratory water, but similar effects are not expected in natural environments where a large variety of other surfaces provide opportunities for deposition (1).

While the polymer contains quaternary amine moieties which are known to interact with gill membranes, environmental behaviour of this modified silicone is expected to be dominated by the siloxane backbone, which will rapidly align itself at or on surfaces. The toxicity of quaternary ammonium compounds is known to be greatly reduced in the environment because of preferential

binding to dissolved organics in surface water (9), and the sorptive properties of the polydimethylsiloxane chain will further moderate any toxicity.

11. ASSESSMENT OF ENVIRONMENTAL HAZARD

Polymer waste generated from the formulation of shampoo/conditioner products will be treated at wastewater treatment plants where it is likely to adsorb to sludge. Any polymer that remains in the treated waste water and enters receiving waters is likely to photodegrade to silicates. Therefore, the polymer is unlikely to present a hazard to the aquatic environment.

Disposal of the sludge is unlikely to present a hazard to the environment as incineration would destroy the substance and liberate oxides of carbon, nitrogen and silicon, while disposal to landfill would immobilise it.

Water soluble, polyether substituted polydimethylsiloxane fluids are widely used as home laundry fabric softeners and personal hair care products, applications which involve potential aquatic exposure. The introduction of a similar compound is not expected to lead to a significant increase in environmental hazard, given the biocompatible nature of these substances.

12. ASSESSMENT OF PUBLIC AND OCCUPATIONAL HEALTH AND SAFETY EFFECTS

The notified chemical is a charged polymer with high molecular weight (>1000). It is therefore not likely to cross biological membranes and cause any systemic effects. It contains no toxic impurities, and has been shown in animal studies to have low acute oral toxicity as well as being non-irritant to skin and eyes.

The trade products containing the notified polymer are stable at ambient temperatures, and have no known explosive or reactivity properties, however they contain the hazardous constituent 1,2 propanediol and at high temperatures may form hazardous oxidation products.

Based on the above information, the notified chemical is not expected to pose a significant hazard to occupational health when used in the proposed manner.

As the notified polymer is to be used in commodity products such as shampoos and conditioners, there will be significant public exposure to the notified polymer. Extensive dermal contact is envisaged, and the product type would indicate that the notified polymer may be used repeatedly. As there is no information on the toxicology of the notified polymer following repeated exposure, or on the potential for skin sensitisation, it is considered that the potential public health hazards, following its incorporation into consumer products, have not been adequately studied. The polymer however possesses high molecular weight, and as a result, dermal absorption is anticipated to be low. The likely low systemic exposure is further supported by the pattern of use of the product, where the notified polymer is generally washed a few minutes after application.

13. RECOMMENDATIONS

To minimise occupational exposure (and public/environmental if recommendations have been made by these agencies) to siloxanes and silicones, di Me, 3-[3-[(3-cocoaminopropyl) dimethylammonio] 2-hydroxypropoxy] propyl group terminated, acetates (salts) the following guidelines and precautions should be observed:

- . Suitable personal protective equipment which complies with Australian Standards should be worn during product production, such as chemical-type goggles with face shield recommended to prevent eye contact (10), chemically resistant gloves (11) and protective clothing (12) to prevent skin contact.
- . Good work practices should be implemented to avoid splashing or spillages.
- . Good personal hygiene practices, such as washing of hands prior to eating food, should be observed.
- . A copy of the MSDS for products containing the notified chemical, such as the formulations ABIL Quat 3270 and ABIL Quat 3272, should be easily accessible to employees working with these products.

14. MATERIAL SAFETY DATA SHEET

The Material Safety Data Sheet (MSDS) for ABIL Quat 3270 and ABIL Quat 3272 (Attachments 1 and 2) were provided in Worksafe Australia format (13). These MSDS were provided by International Sales and Marketing Pty Ltd/Salkat Australia Pty Ltd as part of their notification statement. It is reproduced here as a matter of public record. The accuracy of this information remains the responsibility of International Sales and Marketing Pty Ltd/Salkat Australia Pty Ltd.

15. REQUIREMENTS FOR SECONDARY NOTIFICATION

Under the *Industrial Chemicals (Notification and Assessment) Act 1989* (the Act), secondary notification of siloxanes and silicones, di Me, 3-[3-[(3-cocoaminopropyl) dimethylammonio] 2-hydroxypropoxy] propyl group terminated, acetates (salts) shall be required if any of the circumstances stipulated under subsection 64(2) of the Act arise. No other specific conditions are prescribed.

16. REFERENCES

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3. Project No 1-4-566-88 K-3270/50: *Acute oral toxicity in rats*, International Bio Research, 1988.
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5. Project No 1-3-711-88 *Test for eye irritation of K-3270/50 (3%) in rabbits*, International Bio Research, 1988.
6. OECD Guidelines for Testing of Chemicals - *Acute Oral Toxicity* No: 401, 1987.

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9. Goodrich M S, Dulak L H, Friedman M A and Lech J J, *Environmental Toxicology and Chemistry*, 10, 509-515, 1991.
10. Australian Standard 1337-1984 *Eye Protectors for Industrial Applications*, Standards Association of Australia Publ, Sydney, 1984.
11. Australian Standard 2161-1978 *Industrial Safety Gloves and Mittens (excluding Electrical and Medical Gloves)*, Standards Association of Australia Publ, Sydney, 1978.
12. Australian Standard 3765.1-1990 *Clothing for Protection against Hazardous Chemicals Part 1 Protection against General or Specific Chemicals* Standards Association of Australia Publ, Sydney, 1990.
13. National Occupational Health and Safety Commission, *Guidance Note for Completion of a Material Safety Data Sheet*, 3rd Edition, Australian Government Publishing Service Publ., Canberra, 1991.

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Dow Corning(R) 2-5324 = Dow Corning(R) 5324 Fluid


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